

## CLAIMS

I claim:

1. A decoder comprising:

base-layer components that are configured to decode a base-layer input stream, and to  
5 produce therefrom a base-layer output stream,

enhancement-layer components that are configured to decode an enhancement-layer  
input stream, and to produce therefrom information that supplements the base-layer output  
stream to provide an enhanced output stream, and

10 a controller, operably coupled to the enhancement-layer components, that is configured  
to control the decoding of the enhancement-layer input stream, based on a defined subset of the  
base-layer output stream.

2. The decoder of claim 1, wherein

the base-layer input stream corresponds to an encoding of a series of image frames, and  
15 the defined subset of the base-layer output stream includes a defined region within the  
image frames that is smaller in size than the image frames.

3. The decoder of claim 2, wherein

the enhancement-layer input stream corresponds to at least one of:

- 20 a spatial enhancement,
- a temporal enhancement,
- a data enhancement, and
- a signal-to-noise enhancement.

25 4. The decoder of claim 3, wherein

the temporal enhancement includes MPEG B-frames.

5. The decoder of claim 2, further including

a second controller that is configured to extract at least a portion of the enhanced output stream and the base-layer output stream for rendering to a display device.

5 6. The decoder of claim 2, wherein

the base-layer components include:

a base-layer variable-length decoder that is configured to provide a series of DCT encodings from the base-layer input stream,

10 an inverse discrete-cosine-transform, operably coupled to the base-layer variable-length decoder, that is configured to provide direct-coded pixel values and error-term values corresponding the series of DCT encodings,

a motion compensation device that is configured to receive motion vectors corresponding to prior pixel values and to produce therefrom translated pixel values, and

15 a summer that is configured to combine the translated pixel values and the error-term values to produce motion compensated pixel values, and

wherein

the base-layer output stream includes the direct-coded pixel values and the motion compensated pixel values.

20 7. The decoder of claim 6, wherein

the enhancement-layer components include:

an enhancement-layer variable-length decoder that is configured to provide a series of enhancement DCT encodings from the enhancement-layer input stream,

25 an enhancement inverse discrete-cosine-transform, operably coupled to the enhancement-layer variable-length decoder, that is configured to provide enhancement values corresponding the series of enhancement DCT encodings, and

a second summer that is configured to combine the enhancement values to the base-layer output stream to produce the enhanced output stream.

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8. The decoder of claim 6, wherein

the enhancement-layer input stream corresponds to an enhancement frame, and includes motion vectors relative to the base-layer input stream, and

the enhancement-layer components include

5 an interleaver that is configured to insert the enhancement frame into the base-layer output stream to produce the enhanced output stream.

9. The decoder of claim 1, further including

a user interface, operably coupled to the controller, that is configured to facilitate

10 identifying the defined subset.

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10. A image processing system comprising:

a camera system that is configured to provide a base-level input stream and a corresponding enhancement-level stream,

a base-level decoder that is configured to provide a base-level output stream  
5 corresponding to the base-level input stream,

an enhancement-level decoder that is configured to provide an enhancement stream corresponding to the enhancement-level stream,

a combiner that is configured to combine the enhancement stream to the base-level output stream to produce an enhanced output stream, and

10 a controller that is configured to control the enhancement-level decoder to selectively decode the enhancement-level stream to provide the enhancement stream, based on a defined region of a field of view of the camera system.

11. The image processing system of claim 10, wherein

15 the defined region of the field of view is based on at least one of:

a user selection,

a location parameter,

a pattern recognition, and

a color recognition.

12. A method of providing an enhanced output stream, comprising:

receiving a base-layer input stream,

receiving an enhancement-layer input stream,

decoding the base-layer input stream to provide a base-layer output stream,

5 selectively decoding the enhancement-layer input stream, based on a defined subset of the base-layer output stream, to provide an enhancement output stream, and

combining the base-layer output stream and the enhancement output stream to provide the enhanced output stream.

10 13. The method of claim 12, wherein

the base-layer input stream corresponds to an encoding of a series of image frames, and

the defined subset of the base-layer output stream includes a defined region within the image frames that is smaller in size than the image frames.

15 14. The method of claim 13, wherein

the enhancement-layer input stream corresponds to at least one of:

a spatial enhancement,

a temporal enhancement,

a data enhancement, and

20 a signal-to-noise enhancement.

15. The method of claim 14, wherein

the temporal enhancement includes MPEG B-frames.

25 16. The method of claim 13, further including

extracting at least a portion of the enhanced output stream and the base-layer output stream for rendering to a display device.

17. The method of claim 13, wherein

decoding the base-layer input stream includes:

decoding variable-length bit streams in the base-layer input stream to provide a series of DCT encodings,

5 decoding, via an inverse discrete-cosine-transform, the series of DCT encodings to provide direct-coded pixel values and error-term values,

receiving motion vectors corresponding to prior pixel values,

producing translated pixel values from the prior pixel values, and

10 combining the translated pixel values and the error-term values to produce motion compensated pixel values, and

wherein

the base-layer output stream includes the direct-coded pixel values and the motion compensated pixel values.

15 18. The method of claim 17, wherein

decoding the enhancement-layer input stream includes:

decoding variable-length bit streams in the enhancement-layer input stream to provide a series of enhancement DCT encodings,

20 decoding, via an enhancement inverse discrete-cosine-transform, the series of enhancement DCT encodings to produce enhancement values, and

combining the enhancement values to the base-layer output stream to produce the enhanced output stream.

19. The method of claim 17, wherein

25 the enhancement-layer input stream corresponds to an enhancement frame, and includes motion vectors relative to the base-layer input stream, and

interleaving the enhancement frame into the base-layer output stream to produce the enhanced output stream.

30 20. The method of claim 11, further including

providing a user interface to facilitate identifying the defined subset.